

# Science, industry join hands to explore DEEP-SEA WILDERNESS

By Linda Hsieh, Associate Editor

**IN IAN HUDSON'S** eyes, it's not oil people versus environmentalists. And it's not industry versus science. Rather, it's a partnership, and how both communities can share precious knowledge.

"I think now, more than ever, with more environmental pressure on the (oil) industry, that now is the time when we should be engaging together in a collaborative way," Dr Hudson said.

And that collaboration is, in short, the backbone of the SERPENT project, led by Dr Hudson at the **National Oceanography Centre** in Southampton, United Kingdom. It's also the backbone of the keynote address he gave at the IADC Oil & Gas Activities in Environmentally Vulnerable Areas conference, held 12-14 October in Stavanger, Norway. It was the first time IADC has held a conference devoted entirely to environment issues associated with oil and gas development.

"It was a great success. The event brought together the major stakeholders in the global petroleum industry and brought in new perspectives – like Dr Hudson's," said Dr **Lee Hunt**, IADC president.

"It was the first time IADC has produced a conference dealing specifically with environmentally sensitive topics, but it won't be the last," he added. "IADC will continue to provide conferences where contractors, operators, regulators and environmental groups can discuss issues in a positive forum."

## PROJECT BEGAN IN 2002

SERPENT – Scientific and Environmental ROV Partnership Using Existing Industrial Technology – began in 2002 off the coast of Scotland. Founding partners include industry leaders such as **BP**, **Transocean** and **Subsea 7**. As the project has blossomed globally over the past three years, more have joined, including **Chevron**, **Shell** and Australia's **Woodside**.

This innovative partnership between scientists and key players in the oil and gas



SERPENT, a collaborative effort between industry and scientists has allowed ROVs to document biodiversity in deep-sea wilderness, including a giant sea spider (above) from 600 m off the West of Shetland and a deep-sea sea cucumber (below) from the northeastern Atlantic.



industry aims to use remotely operated vehicles, during their down time, to document biodiversity. Using these cutting-

edge machines, scientists are finally seeing life in the very deep sea – so deep, in fact, that they're practically unexplored wilderness.

Think about it – the sea makes up more than 70 percent of the Earth's surface, but only 5 percent of the deep seafloor has been explored. That's less than the percentage of moon surface exploration.

But with operators looking ever deeper for potential reservoirs and with the world's increasing awareness of drilling's environmental impact, Dr Hudson said, it's high time for companies and scientists to join hands. And perhaps the two will find out they are more alike than they think.

"Even the scientists at the top of our knowledge tree still have a huge amount to learn, and we've got a lot to learn from the industry," he said. "We'll both benefit."

So far, video footage and photos taken under drilling rigs have found at least four never-before-known marine species.

Just recently, working with Woodside in Australia on a Transocean rig, SERPENT filmed a Hammerhead shark at more than 1,600 ft deep – a world record.

“We are only scratching the surface with these observations, and the more places we can set up the project, the more exciting marine life we will surely find,” Dr Hudson said.

And in reverse, he added, oil and gas companies will benefit with greater knowledge of their drilling environment.

“If you’re working in an area and you have the most up-to-date scientific knowledge that is possible ... you can actually visually view and more accurately predict the (drilling) impact,” he said.

Among SERPENT’s current projects are:

- Exploring the marine environment in biodiversity hot spots around the world;
- Examining positive artificial reef effects associated with oil and gas structures;
- Conducting surveys to discover new species and behaviors;
- Redesigning/evolving seabed survey protocols;
- And most importantly, sharing findings and experiences with each other.

## BENEFITS OUTWEIGH RISKS

According to an accompanying presentation at the Stavanger conference session, presented by BP Environmental Team Leader **Sean Young**, benefits far outweigh risks for companies to participate in SERPENT.

First, it demonstrates a company’s environmental stewardship. Second, companies are already required to gather information on operational areas for environmental impact assessments. Third, using ROVs during their down time is adding value to otherwise wasted resources. Fourth, the project has shown to improve employee morale.

And last but certainly not least, according to Mr Young’s presentation, it’s the right thing to do because it benefits mankind.

For companies worried about potential risks, from an operator’s perspective, Mr Young outlined the core rules of SERPENT.

- The project has no adverse impact on safety;



Images from the SERPENT project show a deep-sea cucumber (above) offshore Angola at 2000m and a Bathysarus fish (below) nicknamed the lizard fish from 2500m in the Gulf of Mexico.



- It’s an opportunistic program, so company work always takes priority;
- There’s minimal cost to participate;
- Operator has veto on external publication of photos/images taken by ROVs;
- Companies enjoy great flexibility because the project works only when all parties want to participate.

Of course, as with all projects that involve experts from different fields, challenges remain.

“I think the biggest challenge is just the cultural side of things,” Dr Hudson said. “Obviously the industry is a very busi-

ness-driven system, and perhaps science is driven more around academic knowledge. And sometimes it’s difficult to get the two cultures to work together.”

But even from a scientist’s perspective, Dr Hudson commends the oil and gas industry for its persistent efforts in improving environmental management.

“You can see the (environmental) knowledge level is on the increase, and the understanding and participation is just continually growing,” he said. “People are much more attuned to environmental issues than they’ve ever been before.”

And it’s not just scientists and oil companies who have become involved. British Broadcasting Corp. hopped aboard recently with its “Little Geek” documentary, which was screened on BBC World to more than 450 million people. It included interviews with industry leaders from BP and Transocean and members of the SERPENT project. It also featured renowned movie director **James Cameron**, who wrote and directed the 1989 film “The Abyss.” That film featured the use of ROVs.

The BBC World film has not only helped SERPENT spread its message, it’s also inspired an ongoing DVD project called



An image of a grey reef shark from Woodside's Western Australia Enfield Development was captured.

DEEP – DeepOcean Exploration Education Project.

“It we gain relevant support, the DVD and website resources will be developed to be distributed to schools, colleges, etc, in the UK, USA and Australia at first, followed by the rest of the world,” Dr Hudson said.

“With the support of our partners and anyone who wishes to join in with the DEEP Project, we have the ability to reach more and more people with our message and voyage of discovery.”

Apparently, attendees of the Stavanger conference found deep appreciation for this voyage of discovery – Dr Hudson’s keynote address and coordination of the SERPENT sessions made him the co-winner of the conference’s Best Paper Award (see article on the other co-winner, BP’s **Ben Witchalls**, on Page 76). But Dr Hudson remains modest about being selected out of the event’s more than 20 presentations.

“I’m very enthusiastic about what I do, and most people said they enjoy a speaker who’s enthusiastic about their topic. And I guess it was something slightly different from the norm,” he said. “And I think I opened a few people’s eyes to how much we need to find out about the deep sea.”

According to Dr Hunt, the SERPENT keynote address by Dr Hudson was selected for the Best Paper Award by a panel of judges assembled by **Dominic Cattini**, IADC’s Director of European Operations.

The panel consisted of **Dave Burley**, Manager of Environmental Affairs, **Canada Newfoundland Labrador Offshore Petroleum Board**; **Craig Bunyan**, Offshore Environmental Inspector, **UK Department of Trade and Industry**; **Jason Wilson**, HSE Manager, **GlobalSantaFe**; **Rob Hendriks**, Senior Inspector, **State Supervision of Mines of the Netherlands**; and Mr Cattini. The judges were asked to identify the most informative, useful and thought-provoking paper or speech given during the conference. Cognizance was also given to style and enthusiasm of presentation.

“It was well-deserved recognition,” Dr Hunt said. “The presentation was outstanding, and the subject matter is very important. SERPENT is a great example of what can be accomplished through cooperation between the scientific community and the petroleum industry.”

And it’s a cooperation that Dr Hudson hopes to grow. He encourages more companies in the oil and gas industry to come onboard SERPENT and together, make amazing discoveries.

“We hope that following the IADC meeting, we will make some more new links,” he said. “And of course we are always looking out for new partnerships all the time. We are reliant on industry support to keep the project moving forward and expanding globally.”

For more information on SERPENT, visit its website at [www.serpentproject.com](http://www.serpentproject.com). ■